Message

From: Tien, Alysia [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=A4B393A4B8E74A33ABD6943792B52BC7-TIEN, ALYSIA]
Sent: 10/2/2020 9:40:06 PM
To: Wirick, Holiday [wirick.holiday@epa.gov]
Subject: RE: Follow-up to ND WQS rule amendments - revised/correct ammonia equation

Sounds good and thanks again so much for the chance to provide feedback on the WQSs.
Have a great weekend as well!
Alysia

Alysia Tien
Physical Scientist
Wastewater Section (8WD-CWW)
U.S. EPA Region 8
1595 Wynkoop Street
Denver, CO 80202

Ph: (303) 312-7021
Email: tien.alysia@epa.gov

From: Wirick, Holiday <wirick.holiday@epa.gov>
Sent: Friday, October 2, 2020 3:38 PM
To: Tien, Alysia <Tien.Alysia@epa.gov>
Subject: Re: Follow-up to ND WQS rule amendments - revised/correct ammonia equation

Alysia, thank you so much for your comments. Your permits are absolutely the priority and I know how incredibly swamped you guys are. I just wanted to give you the opportunity to comment if you had any issues with the proposed WQS.

I'll may touch base again with you once we do our "official review" of the WQS in a couple of months.

Have a nice weekend!

Holly

From: Tien, Alysia <Tien.Alysia@epa.gov>
Sent: Friday, October 2, 2020 12:47 PM
To: Wirick, Holiday <wirick.holiday@epa.gov>
Subject: RE: Follow-up to ND WQS rule amendments - revised/correct ammonia equation

Hi Holly,
Thanks for keeping me in the loop.
Sorry, I've had a few big permitting things I've been working on the last couple months so this slipped off my plate a bit.

Based on permit reviews I have done, just had a couple items I can think of that have come up in my reviews, if they make sense to address (or not, I will leave it to your discretion since I am not sure what the scope of our comments is for this- i.e. are we just commenting on the amendments or are we providing general comments). So you would probably better know the appropriateness of these to be included in the comments or maybe we can just talk about them separately:

1. In permit reviews I have done, the interpretation of the temperature limit in Table 1 has been difficult- in particular the second part of the limit since temperatures can fluctuate with seasonal changes quite a bit and there is nothing in the limit that indicates how "natural background conditions" should be calculated/assessed. It can be difficult to figure out what is reasonably acceptable in permits when general terminology like this is used - when there are large fluctuations in temperature it can be difficult to set a reasonable and enforceable limit to "natural background conditions" especially since seasonal temperature changes are not easily predictable (e.g. cold/snow in spring, hot temps carrying into fall, winters warmer than normal, etc). Would suggest adding more specifics as what "natural background conditions" means and how it is calculated/assessed (unless this is something from the Standards program perspective that is already really well defined and I may just not be aware of it).

   "Eighty-five degrees Fahrenheit [29.44 degrees Celsius]. The maximum increase shall not be greater than five degrees Fahrenheit [2.78 degrees Celsius] above natural background conditions."

2. In Table 1 under the heading "Substance or Characteristic", I have had confusion on the designation for "b" of "domestic drinking water". That terminology threw me off as it makes me think of safe drinking water act program limits/regs, but these would not be applicable. When I asked some ND permit writers what that was supposed to be in reference to, they were not really sure either, so it does not seem clear as to what/why "drinking water" is being referenced there (or maybe some ND permitting folks are aware of what it means and I just spoke with someone that was not sure). If it is not clear to you all, I would recommend that reference be clarified to help explain what it is exactly referring to as related to the limits listed in the table, that would be helpful to understand implementation/justification for these limits in permits. (Again, I may just not be familiar with what this is referring to so maybe you could just help walk me through it if it is clear from your program's perspective?)

I am not sure if these types of issues are what you are looking for in the review you are doing, but I am happy to chat more if you would like to discuss either of these more – I am totally fine if you decide not to include them as well based on what you think is appropriate.
Thanks!
Alysia

Alysia Tien
Physical Scientist
Wastewater Section (8WD-CWW)
U.S. EPA Region 8
1595 Wynkoop Street
Denver, CO 80202

Ph: (303) 312-7021
Email: tien.alysia@epa.gov

From: Wirick, Holiday <wirick.holiday@epa.gov>
Sent: Friday, October 2, 2020 11:04 AM
To: Tien, Alysia <Tien.Alysia@epa.gov>
Subject: Follow-up to ND WQS rule amendments - revised/correct ammonia equation

Hi Alysia, as a quick follow-up note to the email I just sent with ND DEQ's proposed WQS amendments, Pete Wax, NDDEQ's WQS Coordinator, said his staffer found an error in the ammonia equation. The corrected criteria are below.

Thanks,
Holly

From: Wax, Peter N. <pwax@nd.gov>
Sent: Thursday, August 20, 2020 12:09 PM
To: Wirick, Holiday <wirick.holiday@epa.gov>
Subject: FW: NEW Ammonia

This is correct. The one I sent yesterday not so much.

Sarah Waldron (She is a genius) built the equations and matched the USEPA criterion output tables. As a heads up the Oncorhynchus equation in the EPA guidance will not run correctly as written. The one below will (see attachment). Not sure if you get points for finding errors or not but if so I will give you all the credit.

Pete

The Corrected Criteria is:

Acute Standard

The one-hour average concentration of total ammonia as nitrogen in mg/l does not exceed, more often than once every three years on the average, the numerical value given by the following:

$$0.7249 \times \left(\frac{0.0114}{1+10^{7.204-pH}} + \frac{1.6181}{1+10^{pH-7.204}}\right)$$

$$\times MIN(51.93 \times 10^{0.036 \times (20-T)}, 23.12 \times 10^{0.036 \times (20-T)})$$

Where Oncorhynchus are absent; or

$$MIN\left(\left(\frac{0.275}{1+10^{7.204-pH}} + \frac{39.0}{1+10^{pH-7.204}}\right),\right.$$

$$\left.\left(0.7249 \times \left(\frac{0.0114}{1+10^{7.204-pH}} + \frac{1.6181}{1+10^{pH-7.204}}\right) \times 23.12 \times 10^{0.036 \times (20-T)}\right)\right)$$

Where Oncorhynchus are present

Chronic Standard

The 30-day rolling average concentration of total ammonia as nitrogen expressed in mg/l is not to exceed, more than once every three years on average, the chronic criteria magnitude calculated using the following formula:

$$0.8876 \times \left(\frac{0.0278}{1+10^{7.688-pH}} + \frac{1.1994}{1+10^{pH-7.688}}\right)$$

$$\times (2.126 \times 10^{0.028 \times (20-MAX(T,7))})$$

In addition, the highest four-day average within the 30-day averaging period should not be more than 2.5 times the criteria more than once in three years on average.

For a spreadsheet with functional equations contact Peter Wax at pwax@nd.gov or 701-328-5268.

From: Wax, Peter N.
Sent: Wednesday, August 19, 2020 2:57 PM

To: Holly Wirick (wirick.holiday@epa.gov) <wirick.holiday@epa.gov>
Subject: NEW Ammonia

Acute Standard
The one-hour average concentration of total ammonia as nitrogen in mg/l does not exceed, more often than once every three years on the average, the numerical value given by the following:

$$0.7249 \times \left(\frac{0.0114}{1+10^{7.204-pH}} + \frac{1.618}{1+10^{pH-7.204}}\right)$$

$$\times MIN(51.93, 23.12 \times 10^{0.036 \times (20-T)})$$

Where Oncorhynchus are absent; or

$$MIN\left(\left(\frac{0.275}{1+10^{7.204-pH}} + \frac{39.0}{1+10^{pH-7.204}}\right),\right.$$

$$\left.\left(0.7249 \times \left(\frac{0.0114}{1+10^{7.488-pH}} + \frac{1.6181}{1+10^{pH-7.488}}\right) \times 23.12 \times 10^{0.036 \times (20-T)}\right)\right)$$

Where Oncorhynchus are present

Chronic Standard
The 30-day rolling average concentration of total ammonia as nitrogen expressed in mg/l is not to exceed, more than once every three years on average, the chronic criteria magnitude calculated using the following formula:

$$0.8876 \times \left(\frac{0.0278}{1+10^{7.688-pH}} + \frac{1.1994}{1+10^{pH-7.688}}\right)$$

$$\times (2.126 \times 10^{0.028 \times (20-\max(T,7))})$$

In addition, the highest four-day average within the 30-day averaging period should not be more than 2.5 times the criteria more than once in three years on average.

Peter N. Wax
Special Projects
Division of Water Quality

701.328.5268 • pwax@nd.gov • https://deq.nd.gov/

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